SCUTOCYAMUS PARVUS, A NEW GENUS AND SPECIES OF WHALE-LOUSE (AMPHIPODA: CYAMIDAE) ECTOPARASITIC ON THE NORTH ATLANTIC WHITE-BEAKED DOLPHIN

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'The sea-lowse is an insect that is an enemy of all kinde of Whales, which by biting and tickling it puts into such a rage, that they are forced to run upon the sand, and hasten to dry land: I know nothing concerning the use of these creatures; but I seriously exhort posterity to search out the use of them.'

From: *The Theater of Insects or Lesser Living Creatures* Book 11 Chapter 38 p. 1126 by Tho. Mouffet, Doctor in Physick, London, 1658.

INTRODUCTION

It is rare to find a new species of cyamid, rarer still to discover a new genus. Since the first figure and description in the scientific literature of a 'Walfisches Lauss' by Martens in 1675, nineteen accepted species of cyamid have been described, only three of these in this century (Leung, 1967). Fifteen species are ascribed to the genus *Cyamus* and one each to *Neocyamus*, *Platycyamus*, *Syncyamus* and *Isocyamus*. Although the last two were established in 1955, only *Syncyamus* is based on a recently described species.

Their rarity is not unexpected. Cyamids are host-specific to cetaceans which are a well-studied and numerically limited group. It is even more surprising, then, to discover in the collections of the British Museum (Natural History), unrecognized since their collection in 1933, specimens of a distinct and new species of cyamid from a common North Atlantic dolphin from which cyamids have never, to our knowledge, been recorded.

These cyamids stood out for two reasons; their generally small size in comparison with other species in the collection, and their distinctively rounded, saucer-shaped, low-profile outline which immediately suggested their novelty. These features indicated that their host would prove to be a fast-swimming species, which is indeed the case, and the subsequent examination has revealed further adaptation to life in an area of turbulent flow in the shape of the dactyls and cramp-iron teeth on the body and appendages.

The cyamids were collected by Dr F. C. Fraser from a white-beaked dolphin, *Lagenorhynchus albirostris* Gray, and later presented to the Crustacea Section. The

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dolphin was caught in the North Sea, off Peterhead in Aberdeenshire, on 21 July 1933. It was a young female measuring 5 ft 7½ in. in length with a pronounced deformity in the curvature of the spine behind the dorsal fin (Fraser, pers. comm.).

SCUTOCYAMUS gen. nov.

DIAGNOSIS. Pereon segments 3–4 and 6–7 fused. Antenna 1, 2-articulate; antenna 2, 1-articulate. Maxilla 2 with outer lobes absent. Maxillipeds fused and markedly reduced to form a small cleft flap. Pereopods 1 and 2 strongly dissimilar in shape and with 1 very much smaller than 2; pereopod 2 only 3-articulate. Male without accessory gills. Type species, *Scutocyamus parvus* sp. nov.

Scutocyamus parvus sp. nov.
(Text figs. 1a–g, 2a–h; Pl. 1a–e)

DIAGNOSIS. With the characters of the genus given above. Body of small size, robust, strongly flattened dorsoventrally, head weakly immersed into anterior pereon segment. Pereopod 1 (Fig. 1c) lacking unguis, dactylus armed with numerous small teeth (Pl. 1e); pereopod 2 and pereopods 5–7 powerfully developed and held in characteristic posture giving a general oval symmetry to the shape of the animal (Fig. 1a; Pl. 1a). Gills simple, single. Pereon segments 5–7 each with a pair of large spines on the ventral surface.

DESCRIPTION. Length of body from apex of head to end of pereon 1·7–2·4 mm in male and 2·6–3·1 mm in ovigerous female. Maximum width of body at the level of tergite 5 from 0·9 to 1·3 mm in male and from 1·4 to 1·8 mm in ovigerous female. No trace of pigmentation remaining in the alcohol preserved material. Pereon (Fig. 1a) somewhat oval in outline (pereon segment 1 fused with head), male rather more slender than female; tergites 3–4 in female slightly shorter than other tergites, in male very much shorter and also much narrower than other tergites (Fig. 1b); tergite 7 weakly immersed into pereon segment 6 (Fig. 1a, b); a pair of strong spines on the ventral side of segments 5–7. Head with sides convex, immersed slightly into anterior pereon segment, anterolateral angles expanded into large lobes giving a wide frontal margin to head; eyes small, oval, mid-dorsal. Antenna 1 (Fig. 2c) small, 2-articulate, article 2 longer than 1, apex with prominent group of sensory setae. Antenna 2 (Fig. 2d) extremely small, 1-articulate, but constriction near tip gives impression of separate terminal article, apex with several large sensory setae. Upper lip (Fig. 2e) large, outer margin weakly concave and densely fringed with fine setae. Mandibles (Fig. 2g) with 2 incisor processes, the anterior of 1–2 teeth, the posterior incisor of several teeth; right mandible with 2 penicils, left with only one; molar process a rounded protuberance covered with very fine setae. Lower lip (Fig. 2f) with inner lobes fused into a single elongate lobe, outer lobes slightly broader than inner, distal margins fringed with long setae. Maxilla 1 (Fig. 2h), apex with 3 pairs of curved spines each with 2–4 small teeth on inner margin; palp 1-articulate, reaching to about the apex of the outer lobe and with

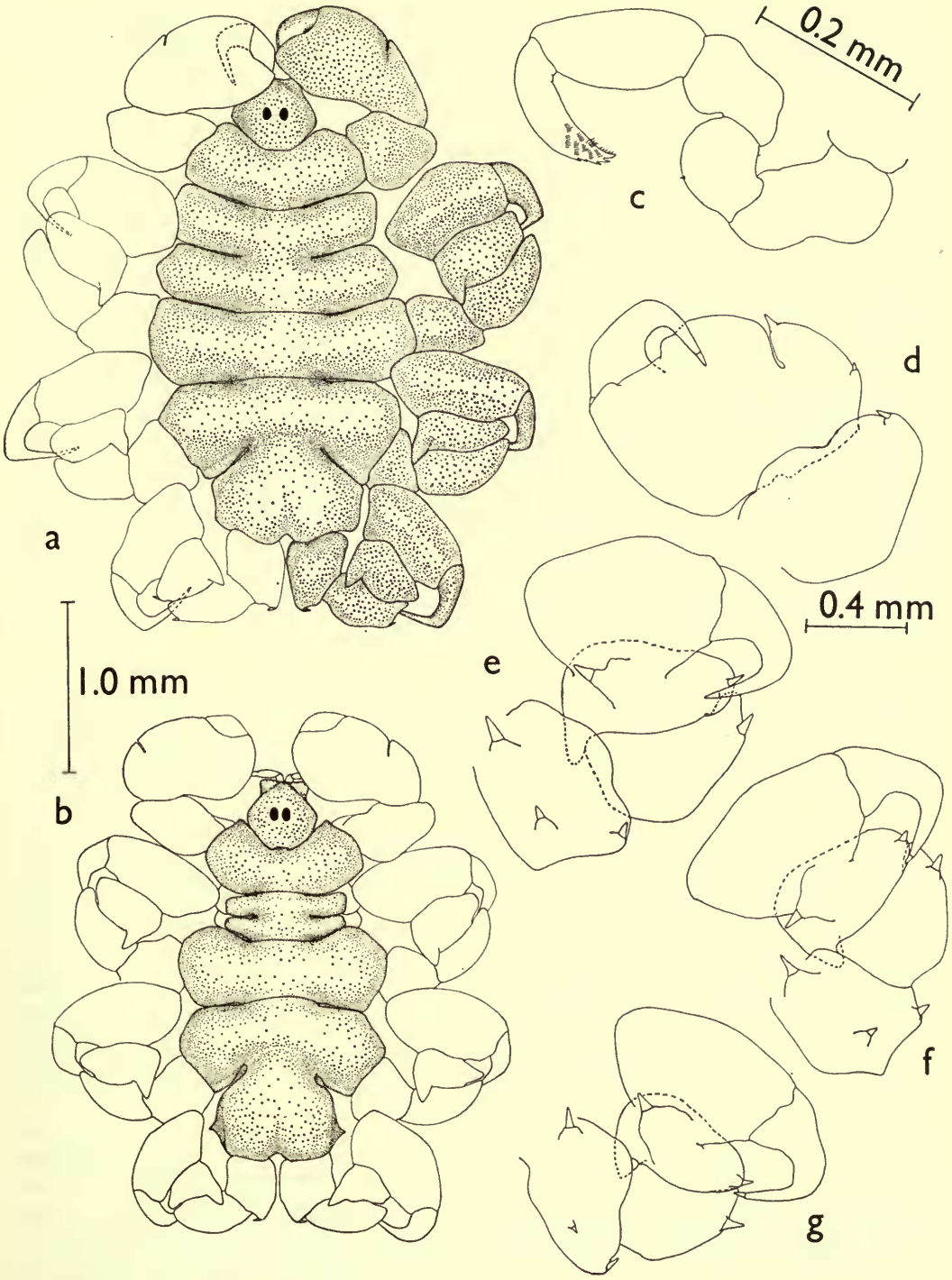

FIG. 1. *Scutocyamus parvus* sp. nov. a, dorsal entire, female ; b, dorsal entire, male ; c, pereopod 1 ; d, pereopod 2, ventral ; e, pereopod 5, ventral ; f, pereopod 6, ventral ; g, pereopod 7, ventral ; bar scale a–b, 1·0 mm ; c, 0·2 mm ; d–g, 0·4 mm.

small group of sensory setae at tip. Maxilla 2 (Fig. 2b) a single elongate lobe with a small group of sensory setae at tip ; right and left maxilla 2 fused along mid-line. Maxillipeds (Fig. 2b) fused and reduced to a small cleft flap. Pereopod 1 (Fig. 1c) extremely small, simple, 5-articulate, propodus elongate and about twice as long as wide ; dactylus broad with numerous combs of small teeth towards apex (Pl. 1e), unguis absent. Pereopod 2 (Fig. 1d) powerfully developed, only 3-articulate, proximal article large and robust with small marginal spine ; article 2 very broad and flattened, the outer margin with a deep indentation which probably marks the point of fusion of two articles ; article 2 with 2 small marginal spines ; dactylus robust strongly angled at its mid-point, and with a small but sharply pointed unguis. These cyamids have a quite characteristic posture with the expansive second pereopods held across the front of the head to form an effective shield. Pereopods 5–7 (Figs. 1e, f, g) powerful, 5-articulate, basal article (basis+ischium) short and stout with 3 well-developed ventral spines ; merus broad and flat with a single spine on distal margin ; carpus about equal to size of merus with a small spine on distal margin and an extremely large mid-ventral spine, the inner posterior angle produced into a small triangular process overlapping the dorsal surface of merus ; propodus elongate and extremely robust ; dactylus acutely angled and with sharply pointed unguis. Gills single, quite short, tapering somewhat, and held across ventral surface of pereon in forward direction ; accessory gills absent in male. Brood pouch rounded (Fig. 2a), containing only 7–10 eggs or young ; margins of oostegites fringed with many short setae ; genital valves well developed with inner margin also fringed with small setae. Pleon a small bilobed structure.

MATERIAL EXAMINED. 11♀♀ (ovigerous), 2·6–3·1 mm length, 1·4–1·8 mm width : 21♀♀ (immature), 2·0–2·5 mm length, 1·1–1·4 mm width : 28♂♂, 1·7–2·4 mm length, 0·9–1·3 mm width : 37 juveniles. Holotype ♀ registration no. 1973 : 105 ; paratypes registration no. 1973 : 106, deposited in the collections of the British Museum (Natural History).

REMARKS. *Scutocyamus parvus* can be immediately recognized by the small body size, general symmetry given to the body posture by the expansive second pereopods, and by the fusion of pereon tergites 3–4 and tergites 6–7. Only one other species, *Syncyamus pseudorcae* Bowman, has a similar fusion of the pereon segments but it is restricted to tergites 6–7. While the amalgamation of tergites 3–4 is complete in *Scutocyamus* (Pl. 1d) the posterior tergites retain a weak demarcation line which can be mistaken for a suture under a light microscope. Confirmation that pereon tergites 6–7 are in fact fused was obtained by examining material with a scanning electron microscope. The demarcation line was found to be a shallow depression which follows the line of fusion of the two segments.

Of the five recognized genera of cyamids, *Scutocyamus* seems to be most closely allied to the monotypic *Syncyamus*. In addition to the fusion of the pereon tergites both have a similar reduction of the mouthparts, especially the reduction of the maxillipeds to a small flap, the fusion of the second maxillae, and the fusion of the inner lobes of the lower lip. Also, the absence of an unguis on the small pereopod 1 is a character shared by the genera. However, *Scutocyamus* retains a number of

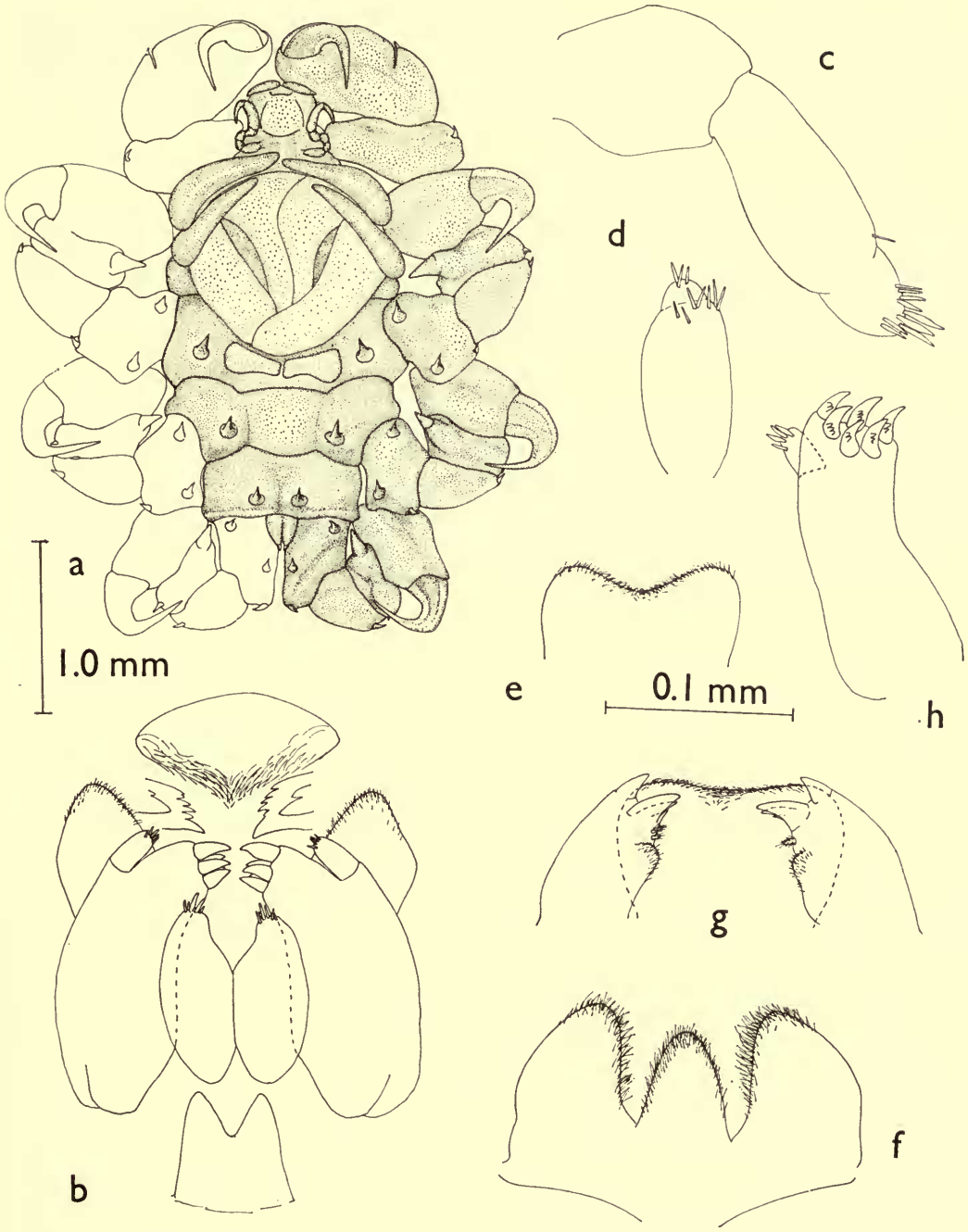

FIG. 2. *Scutocyamus parvus* sp. nov. a, ventral entire, female ; b, mouthparts, ventral ; c, antenna 1 ; d, antenna 2 ; e, upper lip ; f, lowerlip ; g, mandible with upper lip ; h, maxilla 1 ; bar scale a, 1·0 mm ; b–h, 0·1 mm.

unique characters such as the fusion of pereon tergites 3–4, extreme reduction of the antennae and pereopod 1, a 3-articulate pereopod 2, and an absence of accessory gills in the male. The armature of comb-like teeth on the propodus of pereopod 1 has not previously been reported and appears to be an adaption to scrape the surface of the host.

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